

537. *Iodide of lead*.—This substance can be experimented with in tubes heated by a spirit-lamp (524); but I obtained no good results from it, whether I used positive electrodes of platina or plumbago. In two experiments the numbers for the lead came out only 75.46 and 73.45, instead of 103.5. This I attribute to the formation of a periodide at the positive electrode, which, dissolving in the mass of liquid iodide, came in contact with the lead evolved at the negative electrode, and dissolved part of it, becoming itself again protiodide. Such a periodide does exist; and it is very rarely that the iodide of lead formed by precipitation, and well washed, can be fused without evolving much iodine, from the presence of this per-compound; nor does crystallisation from its hot aqueous solution free it from this substance. Even when a little of the protiodide and iodine are merely rubbed together in a mortar, a portion of the periodide is formed. And though it is decomposed by being fused and heated to dull redness for a few minutes, and the whole reduced to protiodide, yet that is not at all opposed to the possibility, that a little of that which is formed in great excess of iodine at the *anode*, should be carried by the rapid currents in the liquid into contact with the *cathode*.

538. This view of the result was strengthened by a third experiment, where the space between the electrodes was increased to one-third of an inch; for now the interfering effects were much diminished, and the number of the lead came out 89.04; and it was fully confirmed by the results obtained in the cases of *transfer* to be immediately described (553).

The experiments on iodide of lead therefore offer no exception to the *general law* under consideration, but on the contrary may, from general considerations, be admitted as included in it.

539. *Protiodide of tin*.—This substance, when fused (138), conducts and is decomposed by the electric current, tin is evolved at the *anode*, and periodide of tin as a secondary result (514, 525) at the *cathode*. The temperature required for its fusion is too high to allow of the production of any results fit for weighing.

540. *Iodide of potassium* was subjected to electrolytic action in a tube, like that in fig. 28 (524). The negative

electrode was
a globule of lead, and I hoped in this way to
retain the potas-
sium, and obtain results that could be weighed
and compared
with the volta-electrometer indication; but
the difficulties
dependent upon the high temperature
required, the action
upon the glass, the fusibility of the platina
induced by the